

# Malaria Blood Survey Of Mexican Laborers In an Arkansas County

By L. KARTMAN, Sc.D.  
BETTYE M. MAYS, R.N.

Mexicans have been employed as transient agricultural laborers in the Mississippi Delta area since 1925. The number of such workers has been increasing, and the legislation approved in July 1951 (1) concerning the use of Mexican labor in the United States will allow thousands more of these laborers to come into this country every year. In former years, many of these workers were residents of Texas, but recently most of them have been male Mexican nationals coming into the United States from many of the Mexican States. These workers are given medical examinations and are vaccinated against smallpox (2), but examinations of blood films for detection of malarial infections are not routinely performed. Since endemic malaria continues to be reported from many sections of Mexico (3) and since the imported laborers are exposed to large populations of *Anopheles quadrimaculatus* in areas in which they work, it was considered desirable to determine if such persons employed in Phillips County, Arkansas, carried malarial parasites.

## Methods

Thick blood films were made from workers in the cotton fields by a three-member survey team. Each group of workers usually had an interpreter. It was possible to call up four or five men at a time, obtain their names, ages, and

---

*Dr. Kartman, an entomologist with the Communicable Disease Center of the Public Health Service and now in charge of the Hawaii Field Station, Honokaa, T. H., previously participated with Miss Mays in a mosquito and malaria investigational project in Arkansas.*

---

other pertinent information, and to make the blood films in about 1 to 2 minutes per man. This was facilitated by having the interpreter or one of the workers act as recorder under the direction of one member of the survey team. The other members of the team made the blood films.

## Malarial Survey Findings

A total of 1,038 blood films was obtained on the Mexican nationals from June 5 through July 12, 1951, and 1,022 of these were examined for malarial parasites. These 1,022 represented over 94 percent of the 1,080 Mexican workers under contract with plantations in the Phillips County Cotton Growers Association. The workers contacted represented 24 Mexican States and the Federal District. The majority of these men were between 20 and 35 years of age. An attempt to obtain histories of malaria proved difficult since questions concerning disease or physical disability were generally evaded. Nevertheless, some data were obtained. The table shows the distribution of the men according to the 24 Mexican States from which they migrated and recent malarial morbidity and mortality rates in Mexico.

Five percent of the men gave positive histories of malaria but the blood films were negative for parasites. Obviously the histories of malaria represent a small fraction of the true past positives for malaria among the men surveyed. However, the data in the table indicate that men from Mexican States with higher morbidity and mortality rates gave more positive histories than those from the Mexican States with lower morbidity and mortality rates.

Mexican workers have been shown in the past to constitute a source of malarial infections. However, these records are based primarily on Mexicans living within the United States (4, 5). No past records exist on infections due to malaria of Mexican nationals brought into this country.

Recent Communicable Disease Center malaria appraisal data show that in 1949, 8 cases appraised as positive occurred in Texas among Mexican nationals and in 1950, 13 such cases were identified. Each of these cases occurred as sporadic individual cases; none were known

**Distribution of male Mexican nationals by State and by positive malarial history, together with recent malarial rates**

State	Number men examined	Positive history		Rates per 100,000 men <sup>1</sup>	
		Number	Percent	Morbidity (1947-51)	Mortality (1948)
Aguascalientes	5	0	0	16.9	13.00
Baja California	1	0	0	23.9	<sup>2</sup> 7.70
Campeche	1	0	0	198.7	94.66
Chihuahua	3	0	0	3.6	2.16
Colima	2	0	0	161.4	130.25
Coahuila	19	0	0	5.5	2.60
(Mexico) Distrito Federal	38	1	2.6	4.4	-----
Durango	59	4	6.7	10.8	7.22
Guanajuato	201	8	3.9	31.7	6.84
Guerrero	19	1	5.2	210.1	154.33
Hidalgo	12	1	8.3	111.0	84.68
Jalisco	77	3	3.8	29.8	17.28
Mexico	53	1	1.8	17.4	7.13
Michoacan	210	12	5.7	46.4	28.42
Morelos	43	2	4.6	221.5	163.68
Nuevo León	35	0	0	31.7	10.35
Oaxaca	14	2	14.0	524.9	327.82
Puebla	32	1	3.1	212.9	94.51
San Luis Potosí	65	7	10.7	189.9	105.18
Sonora	1	0	0	37.7	26.29
Tamaulipas	11	1	9.0	58.1	34.68
Tlaxcala	9	1	11.1	31.2	3.28
Veracruz	18	2	11.1	217.8	151.63
Yucatán	1	0	0	122.0	48.02
Zacatecas	109	6	5.4	23.2	20.26
Total	1,038	53	5.1	-----	-----

<sup>1</sup> Supplied by Dr. S. B. Armas, chief of the Malaria Campaign in Mexico, and Dr. C. A. Antunes, assistant director, Pan American Sanitary Bureau.

<sup>2</sup> Baja California, South Territory.

to be identified in groups of two or more, which suggests that they represent relapses of infections acquired in Mexico rather than spread of the infection within the United States.

### Summary and Conclusion

In view of the paucity of available records of malaria among the Mexican nationals brought into this country, a blood survey of 1,038 Mexican nationals in Phillips County, Arkansas, was accomplished. The fact that not a single positive blood film was found may suggest that there is little danger of transmissible malaria from these nationals. Nevertheless, as long as many of these workers are recruited from Mexican States from which endemic malaria is reported, it might be advisable for border stations to obtain blood films from individuals who give a recent history of malaria, or who exhibit clinical symptoms of malaria.

### REFERENCES

- (1) An act to amend the Agricultural Act of 1949. Public Law 78—82d Cong., 1st sess. Approved July 12, 1951.
- (2) Gregg, R.: Medical examination and vaccination of farm laborers recruited from Mexico. Pub. Health Rep. 65: 807-809 (1950).
- (3) Armas, S. B., et al.: Campana nacional contra el paludismo, 1949. *In Mexico memoria of Dep. de salubridad publica. Memoria secret. de salub. y Asistencia, Mexico, D. F.*
- (4) Barber, M. A., and Coogle, C. P.: Malaria among Mexican cotton pickers imported into Mississippi. Pub. Health Rep. 42: 1368-1370 (1927).
- (5) Geiger, J. C., and Gray, J. P.: Note on an outbreak of malaria in a railroad camp, Rawson Switch, Calif. Pub. Health Rep. 46: 516-518 (1931).

